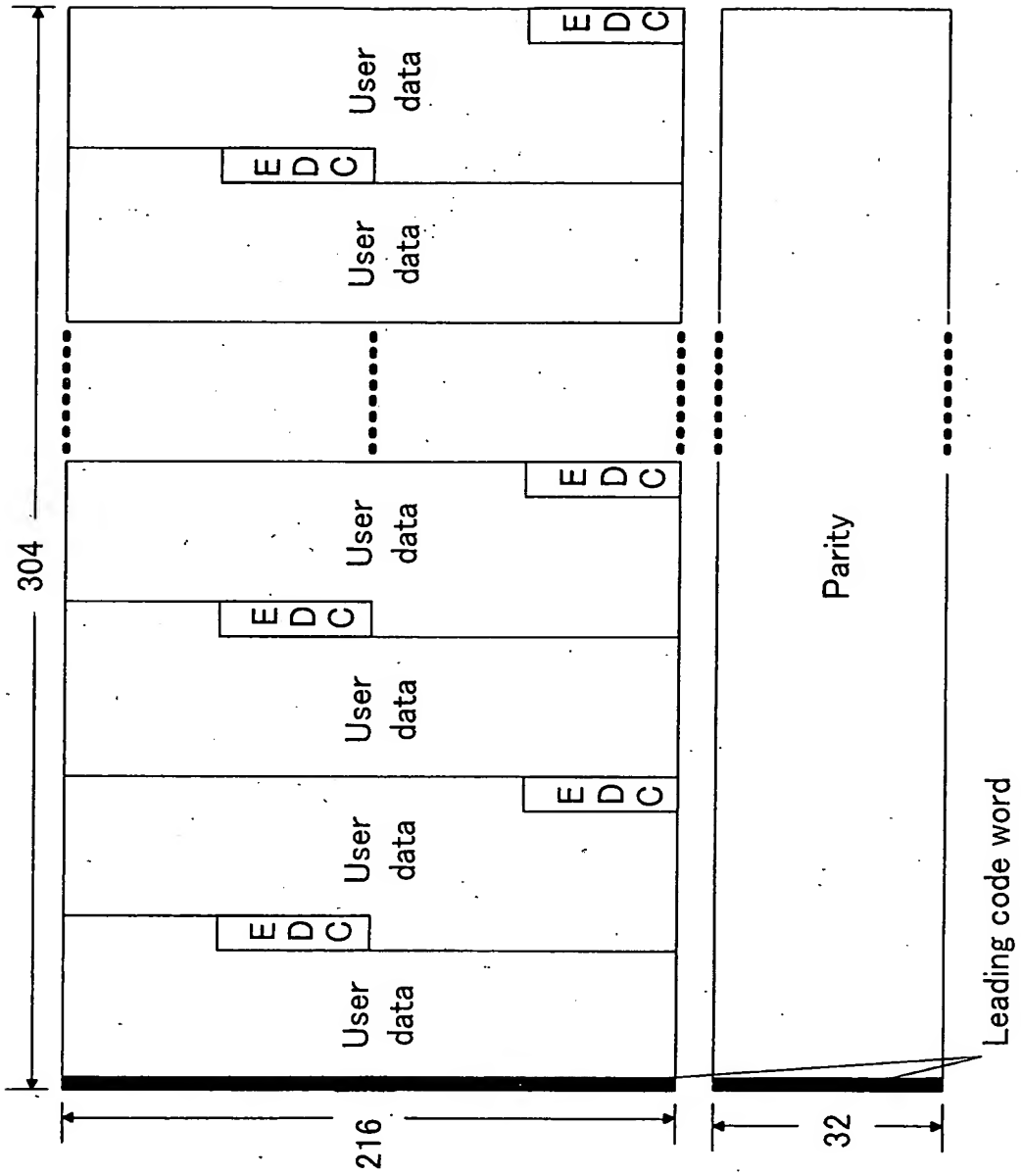



FIG.1

FIG.2

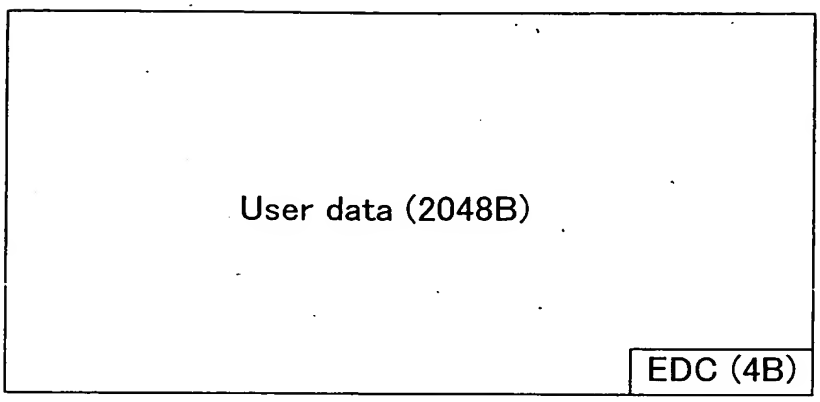


FIG.3

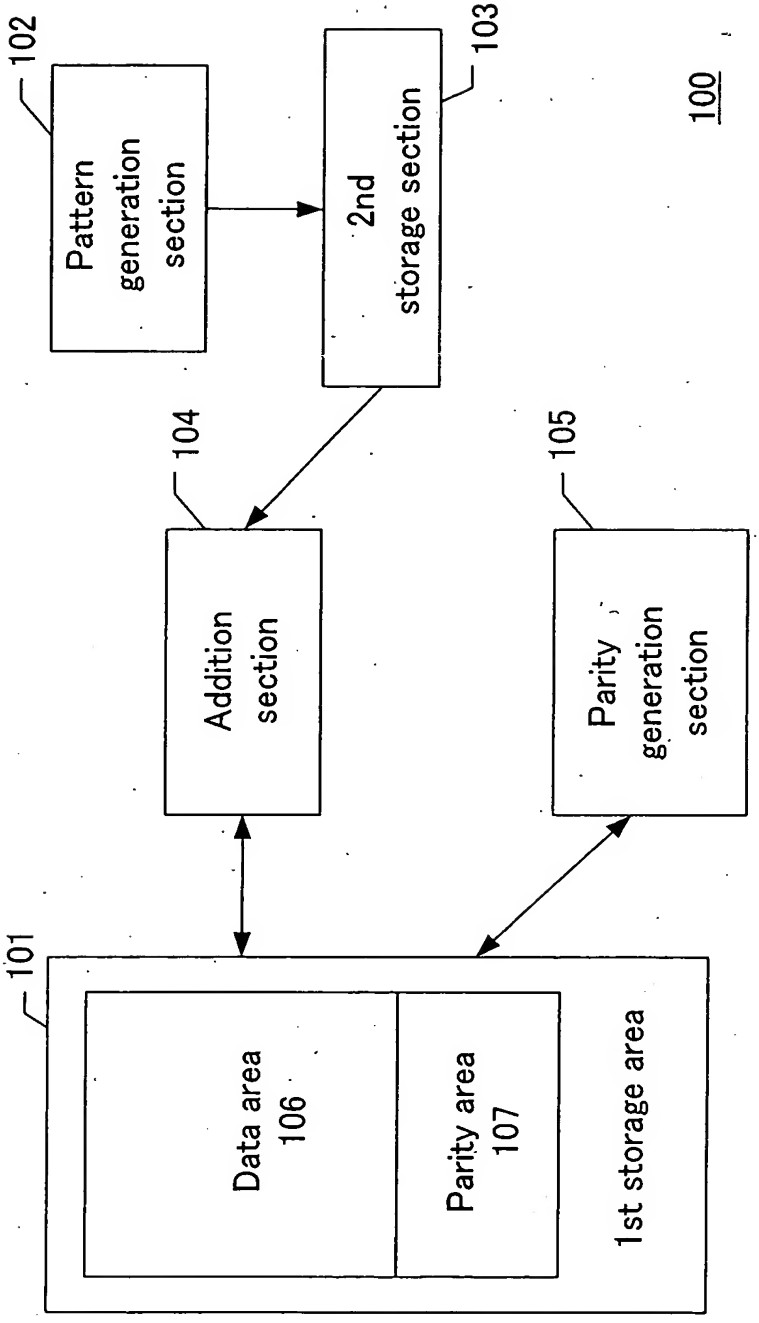

100
102
Pattern generation section
103
2nd storage section
104
Addition section
105
Parity generation section
101
Data area 106
Parity area 107
1st storage area

FIG.4

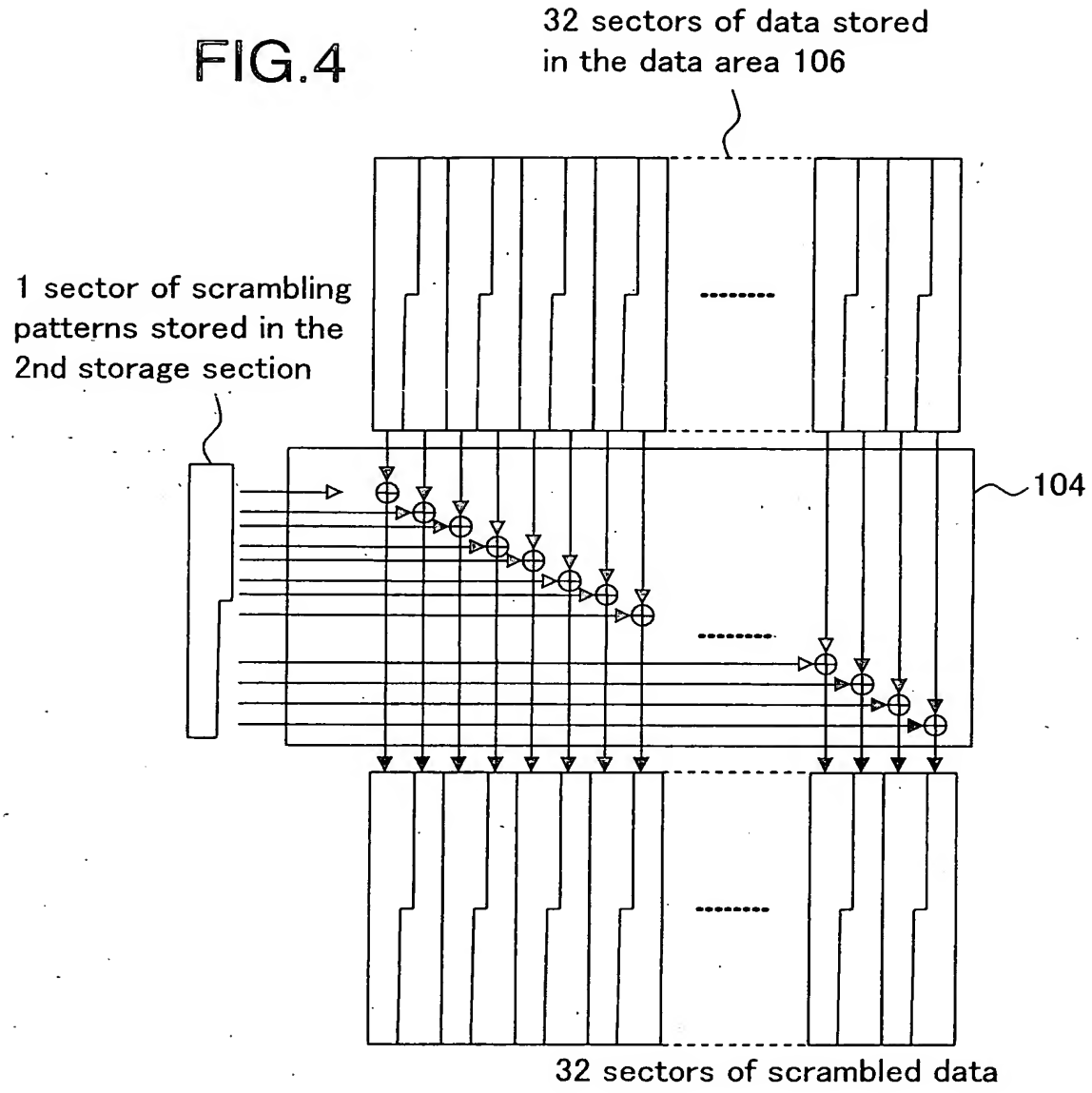

32 sectors of data stored
in the data area 106
1 sector of scrambling
patterns stored in the
2nd storage section
104
32 sectors of scrambled data

FIG.5

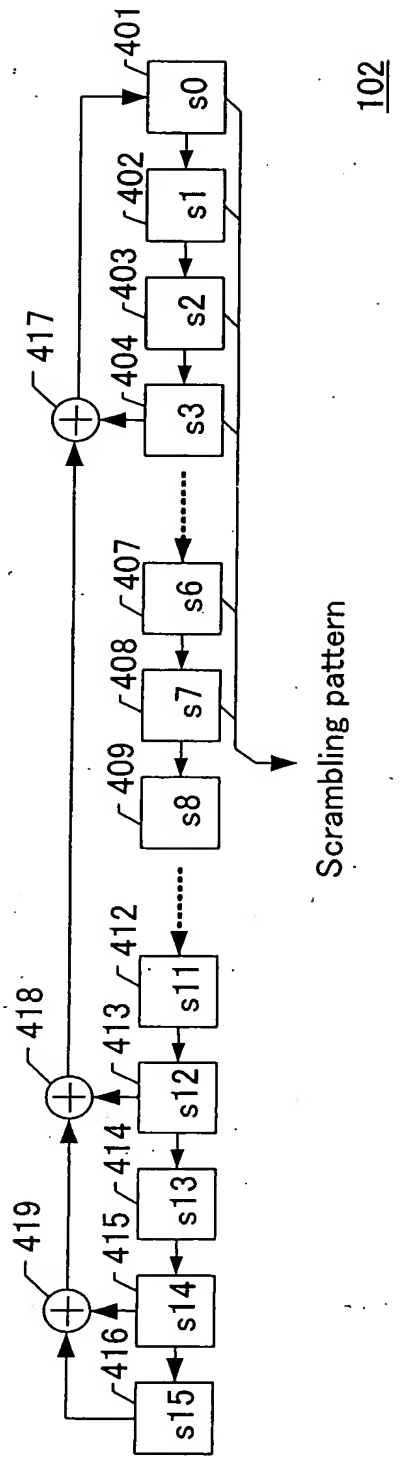

401
s0
402
s1
403
s2
404
s3
417
407
s6
408
s7
409
s8
Scrambling pattern
102
412
s11
413
s12
418
414
s13
415
s14
419
416
s15

FIG.6

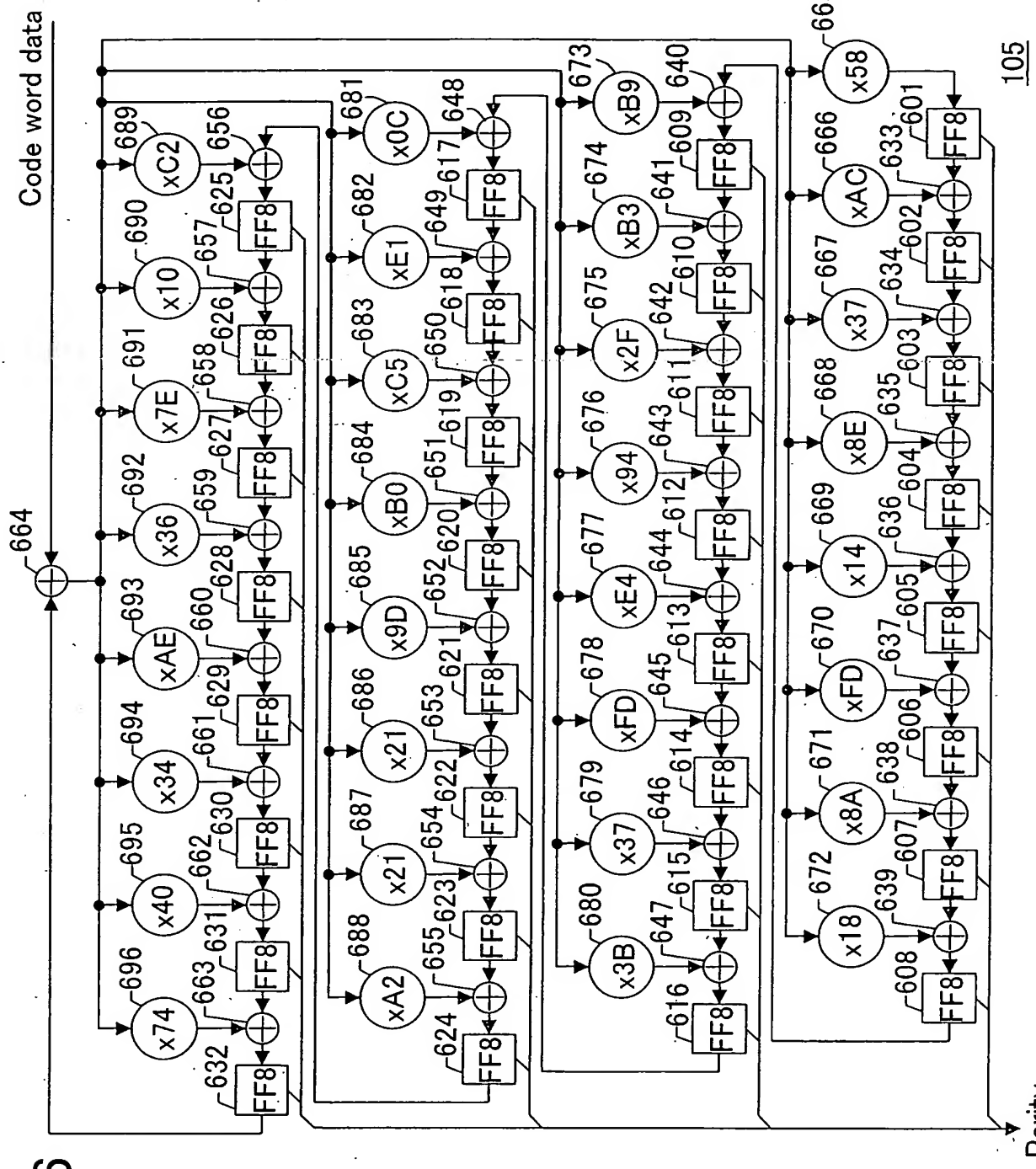

Code word data
Parity
105
664
FF8
x74
x40
x34
xAE
x36
x7E
x10
xC2
xA2
x21
x21
x9D
xB0
xC5
xE1
x0C
x3B
x37
xFD
xE4
x94
x2F
xB3
xB9
x18
x8A
xFD
x14
x8E
x37
xAC
x58

FIG.7

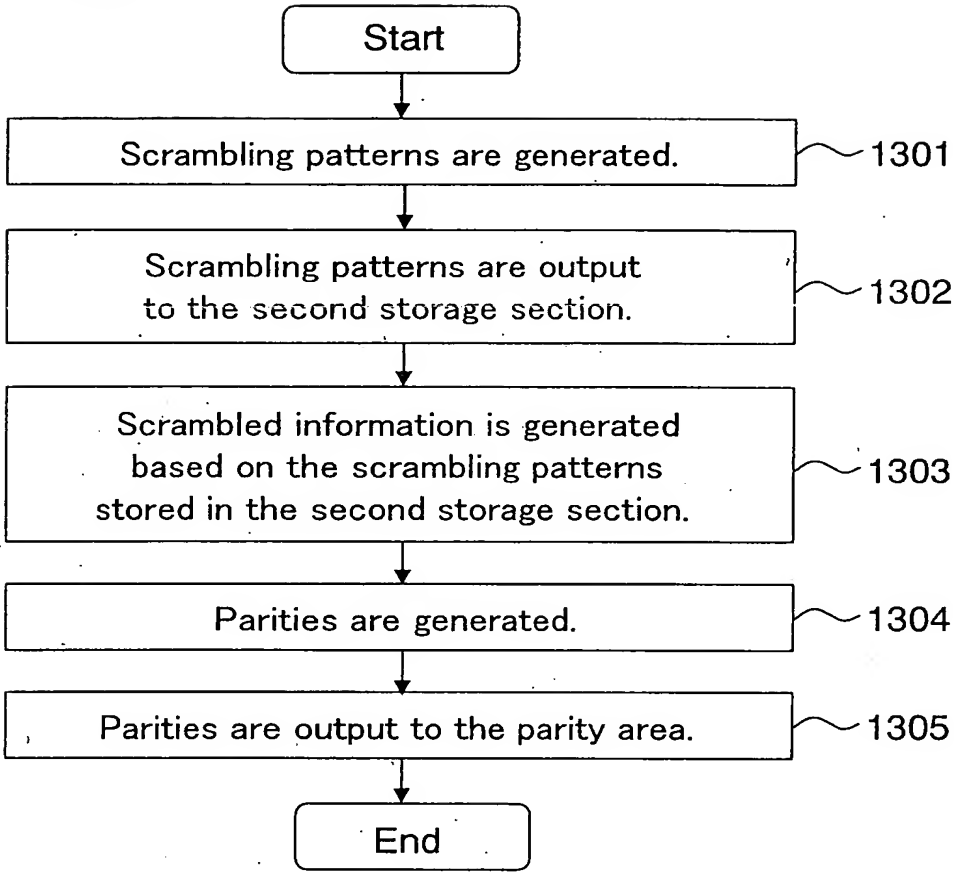

Start
Scrambling patterns are generated.
1301
Scrambling patterns are output to the second storage section.
1302
Scrambled information is generated based on the scrambling patterns stored in the second storage section.
1303
Parities are generated.
1304
Parities are output to the parity area.
1305
End

FIG.8

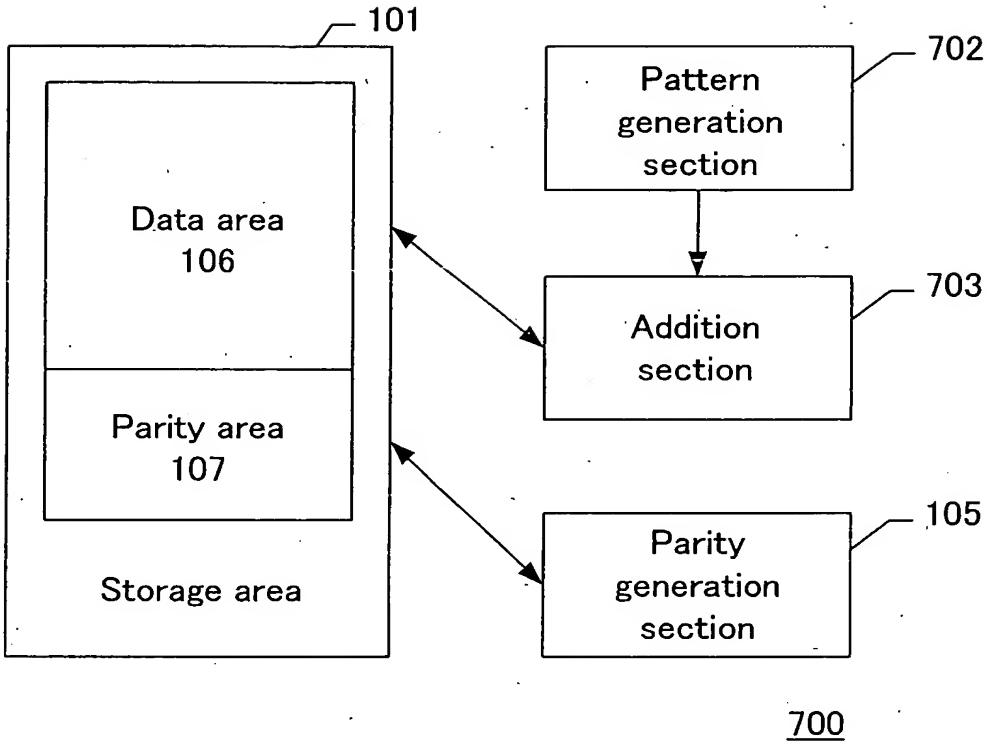

101
Data area
106
Parity area
107
Storage area
Pattern
generation
section
702
Addition
section
703
Parity
generation
section
105
700

FIG.9

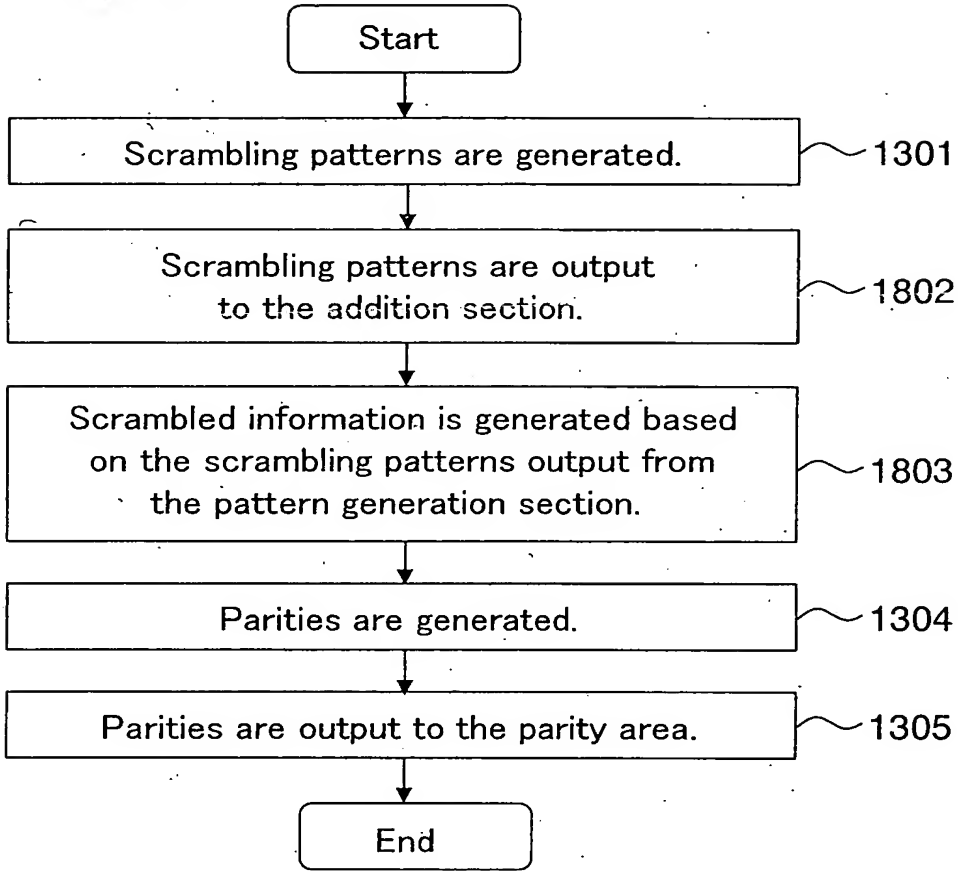

Start
Scrambling patterns are generated.
1301
Scrambling patterns are output to the addition section.
1802
Scrambled information is generated based on the scrambling patterns output from the pattern generation section.
1803
Parities are generated.
1304
Parities are output to the parity area.
1305
End

FIG.10

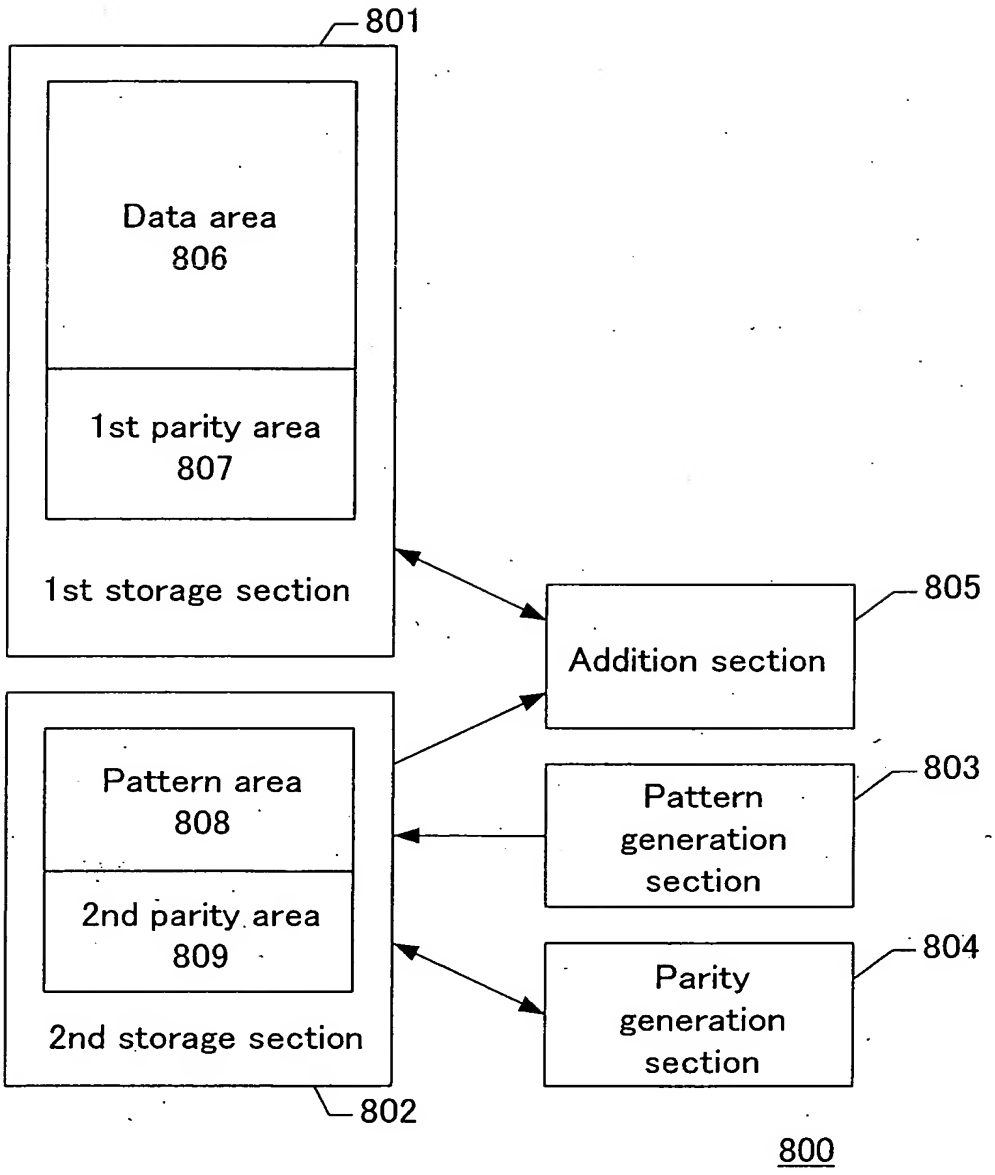

801
Data area
806
1st parity area
807
1st storage section
Addition section
805
Pattern area
808
2nd parity area
809
2nd storage section
Pattern generation section
803
Parity generation section
804
802
800

FIG.11

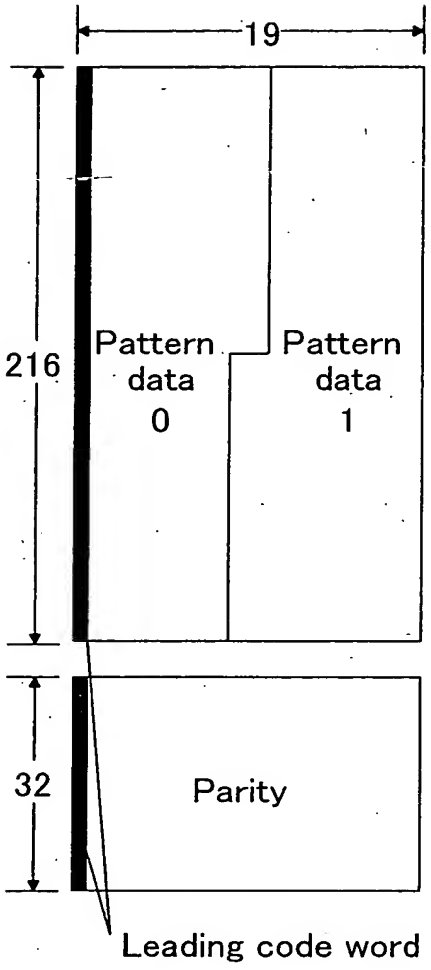

19
216
Pattern data 0
Pattern data 1
32
Parity
Leading code word

FIG.12

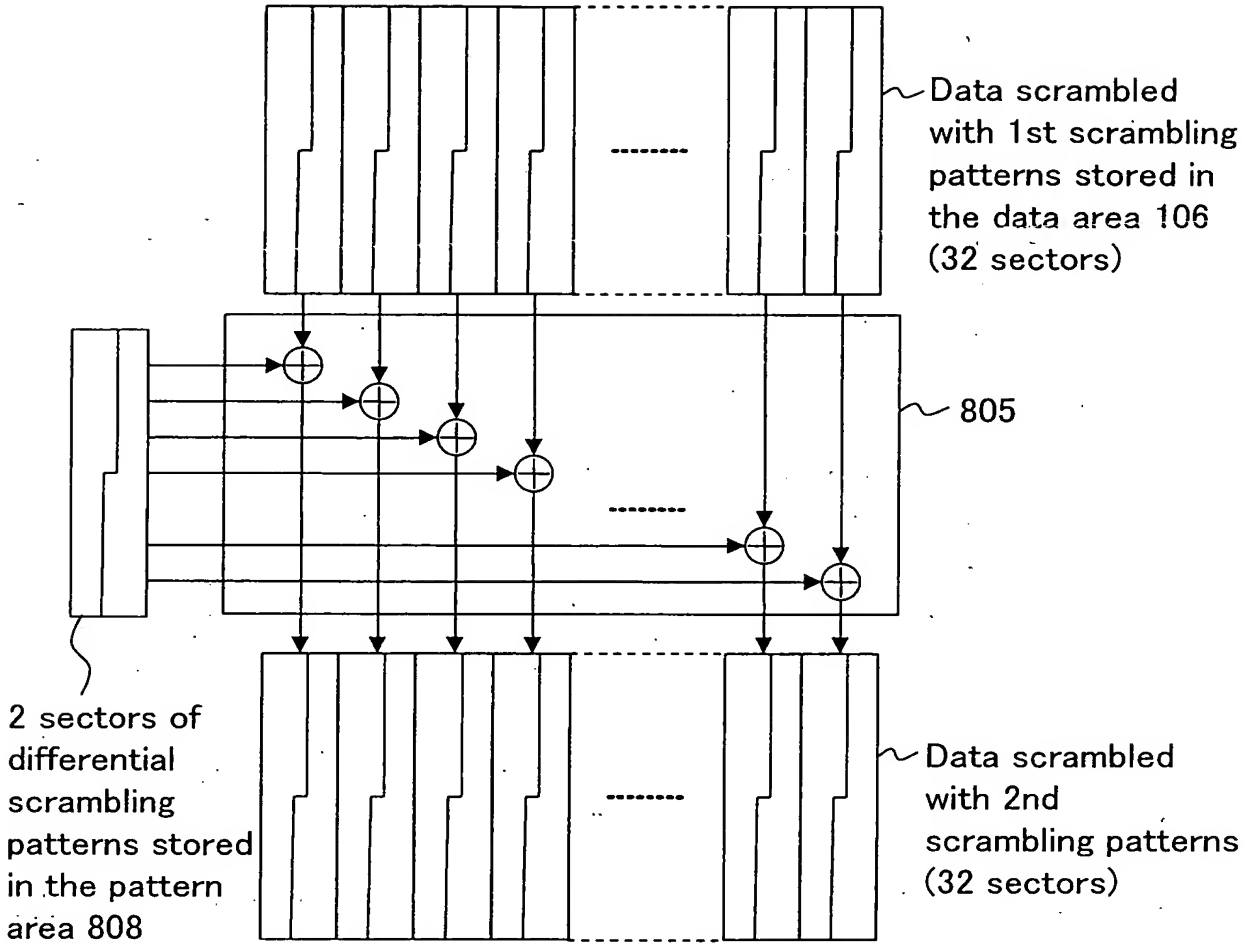

Data scrambled with 1st scrambling patterns stored in the data area 106 (32 sectors)
805
2 sectors of differential scrambling patterns stored in the pattern area 808
Data scrambled with 2nd scrambling patterns (32 sectors)

FIG.13

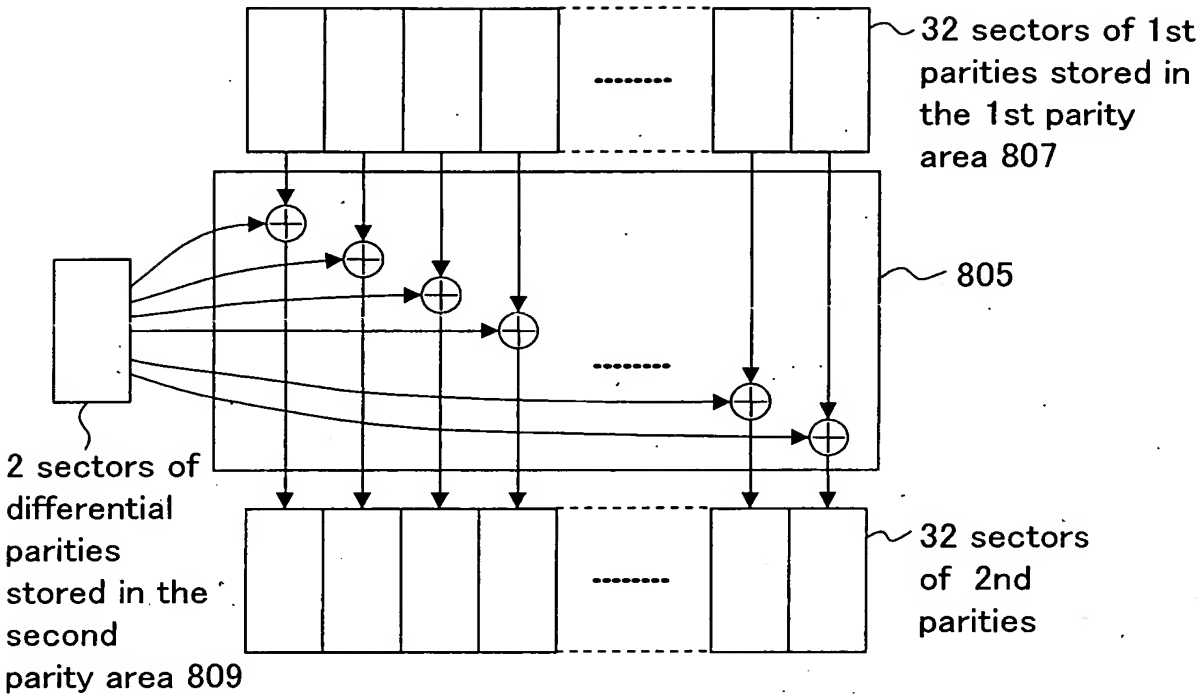

32 sectors of 1st parities stored in the 1st parity area 807
805
2 sectors of differential parities stored in the second parity area 809
32 sectors of 2nd parities

FIG.14

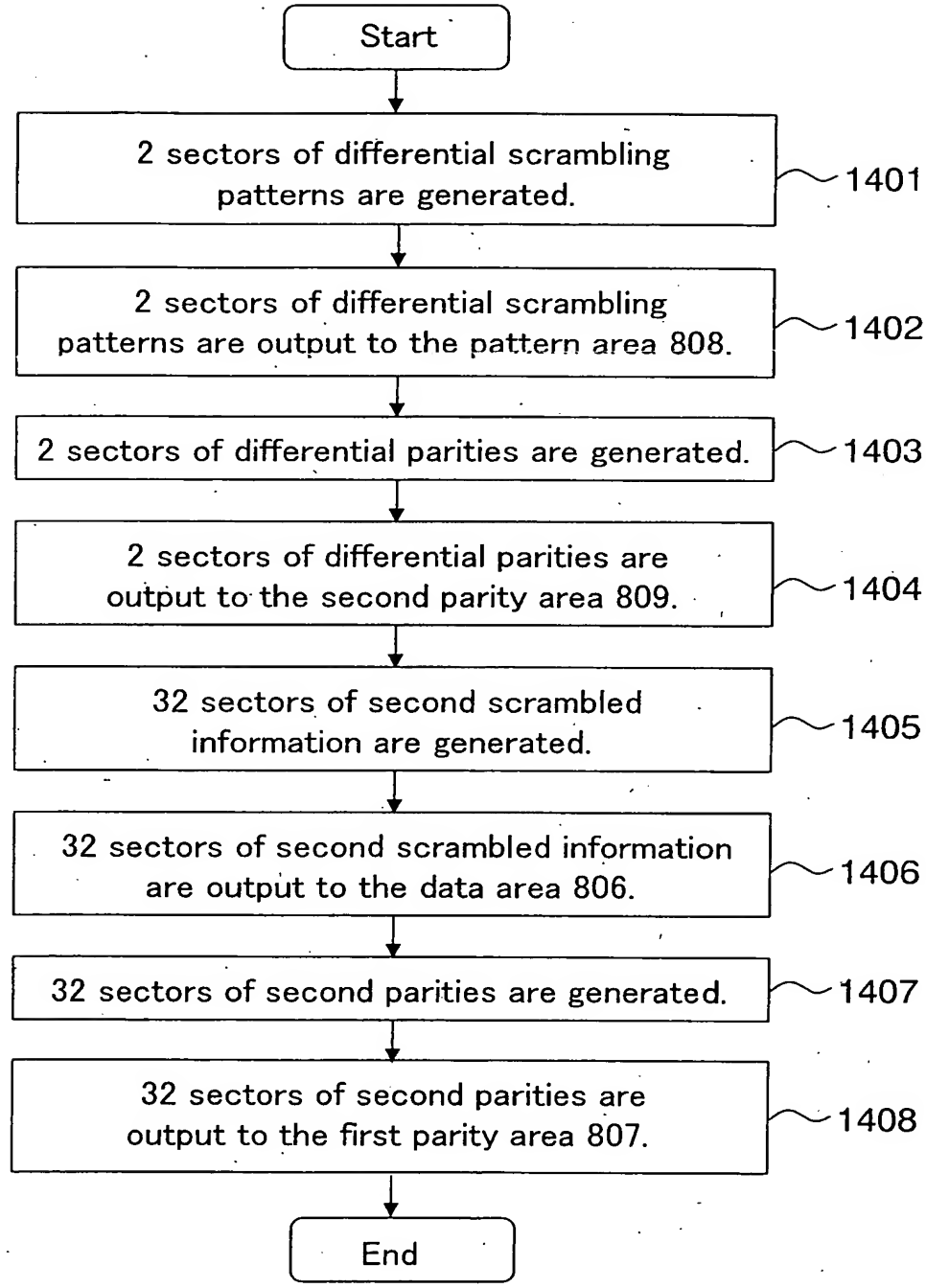

Start
2 sectors of differential scrambling patterns are generated.
1401
2 sectors of differential scrambling patterns are output to the pattern area 808.
1402
2 sectors of differential parities are generated.
1403
2 sectors of differential parities are output to the second parity area 809.
1404
32 sectors of second scrambled information are generated.
1405
32 sectors of second scrambled information are output to the data area 806.
1406
32 sectors of second parities are generated.
1407
32 sectors of second parities are output to the first parity area 807.
1408
End

FIG.15

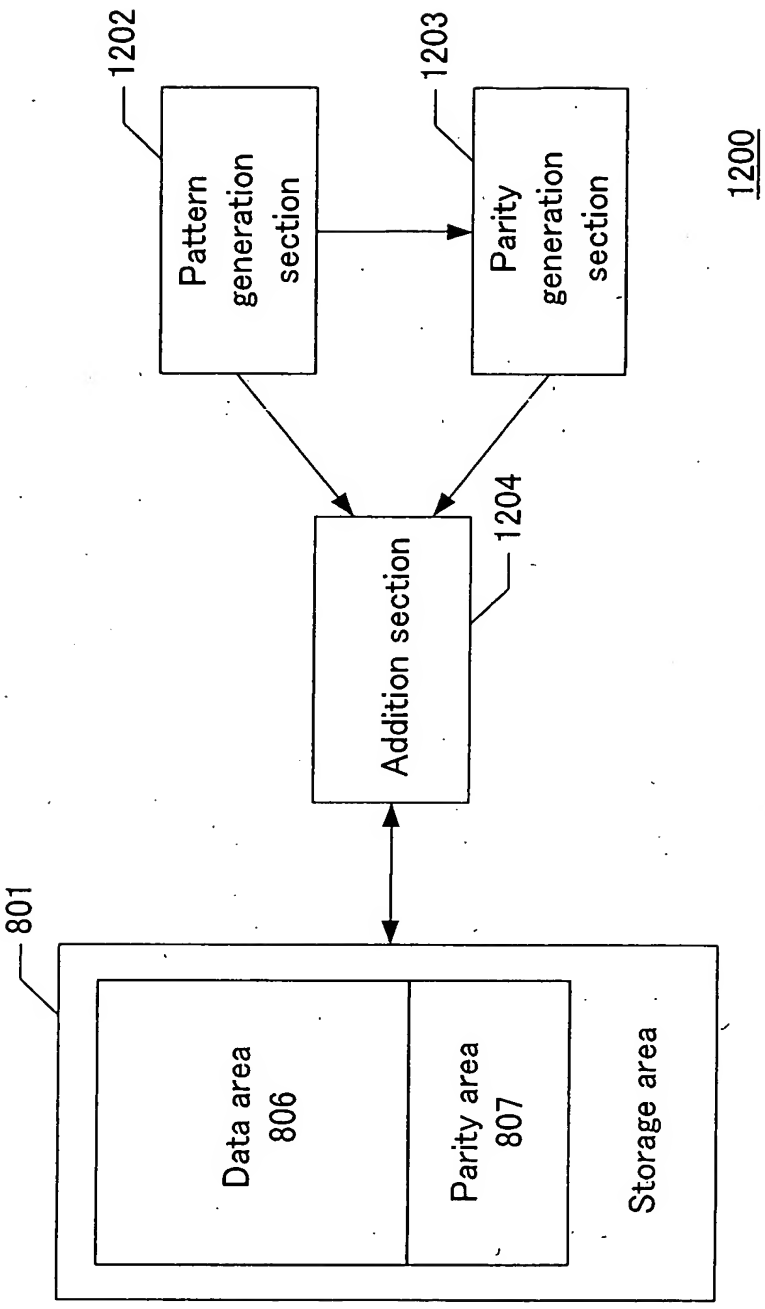

1202
Pattern generation section
1203
Parity generation section
1200
Addition section
1204
801
Data area 806
Parity area 807
Storage area

FIG.16

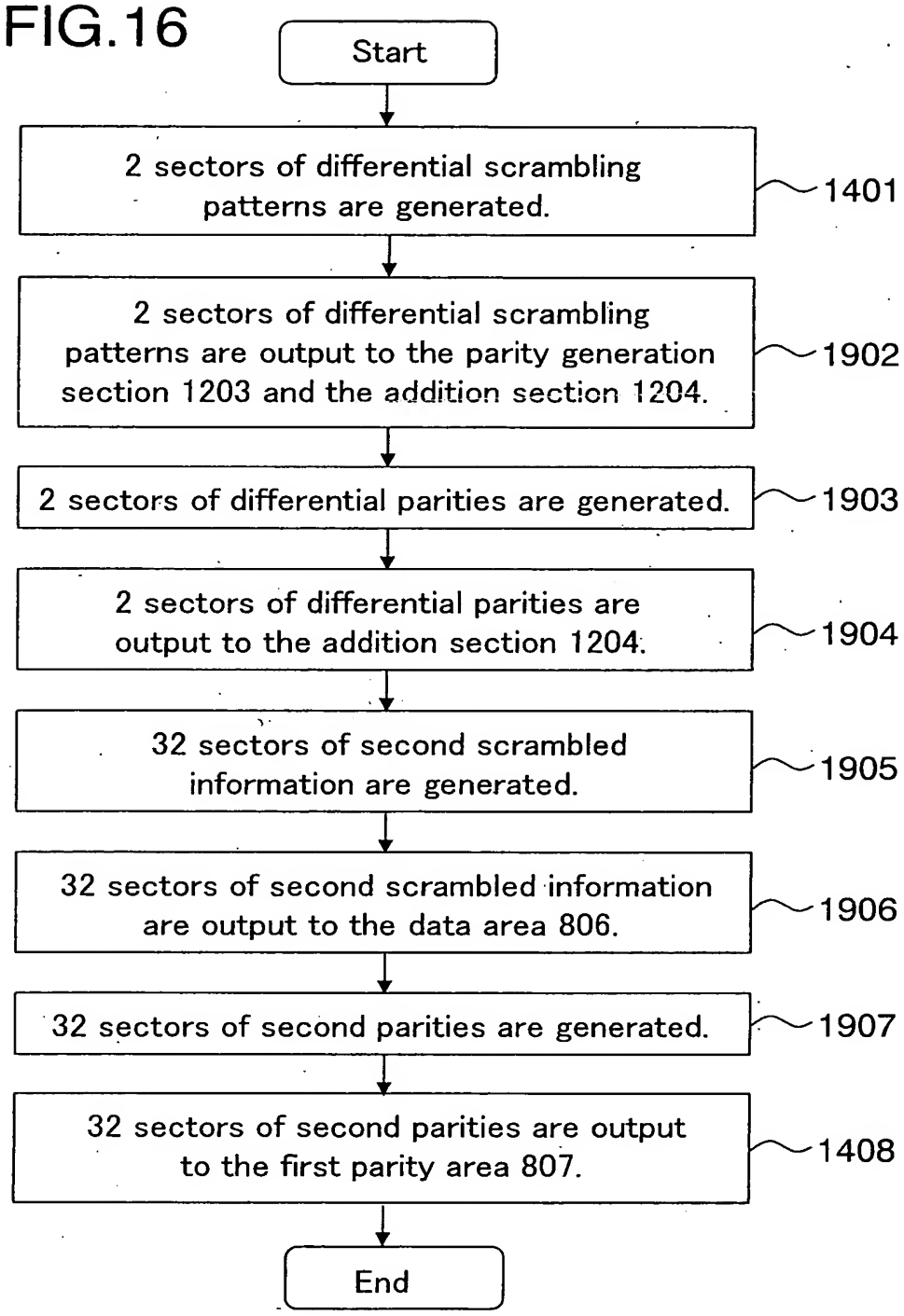

Start
2 sectors of differential scrambling patterns are generated.
1401
2 sectors of differential scrambling patterns are output to the parity generation section 1203 and the addition section 1204.
1902
2 sectors of differential parities are generated.
1903
2 sectors of differential parities are output to the addition section 1204.
1904
32 sectors of second scrambled information are generated.
1905
32 sectors of second scrambled information are output to the data area 806.
1906
32 sectors of second parities are generated.
1907
32 sectors of second parities are output to the first parity area 807.
1408
End

FIG.17

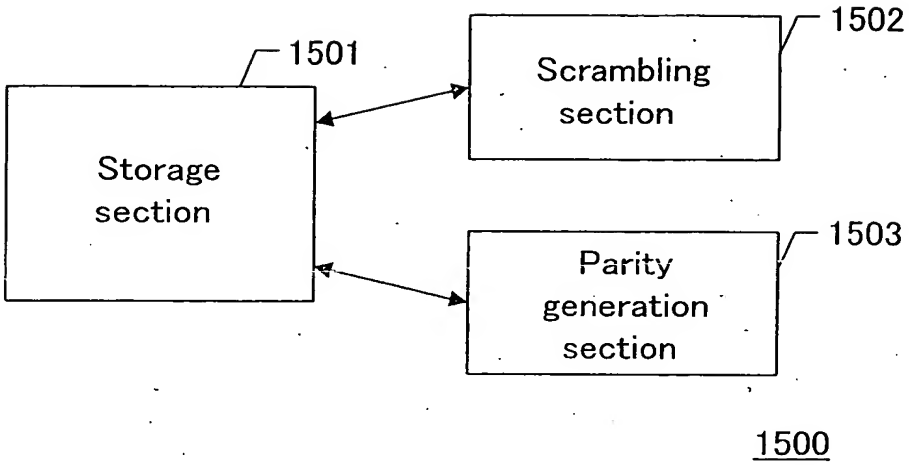
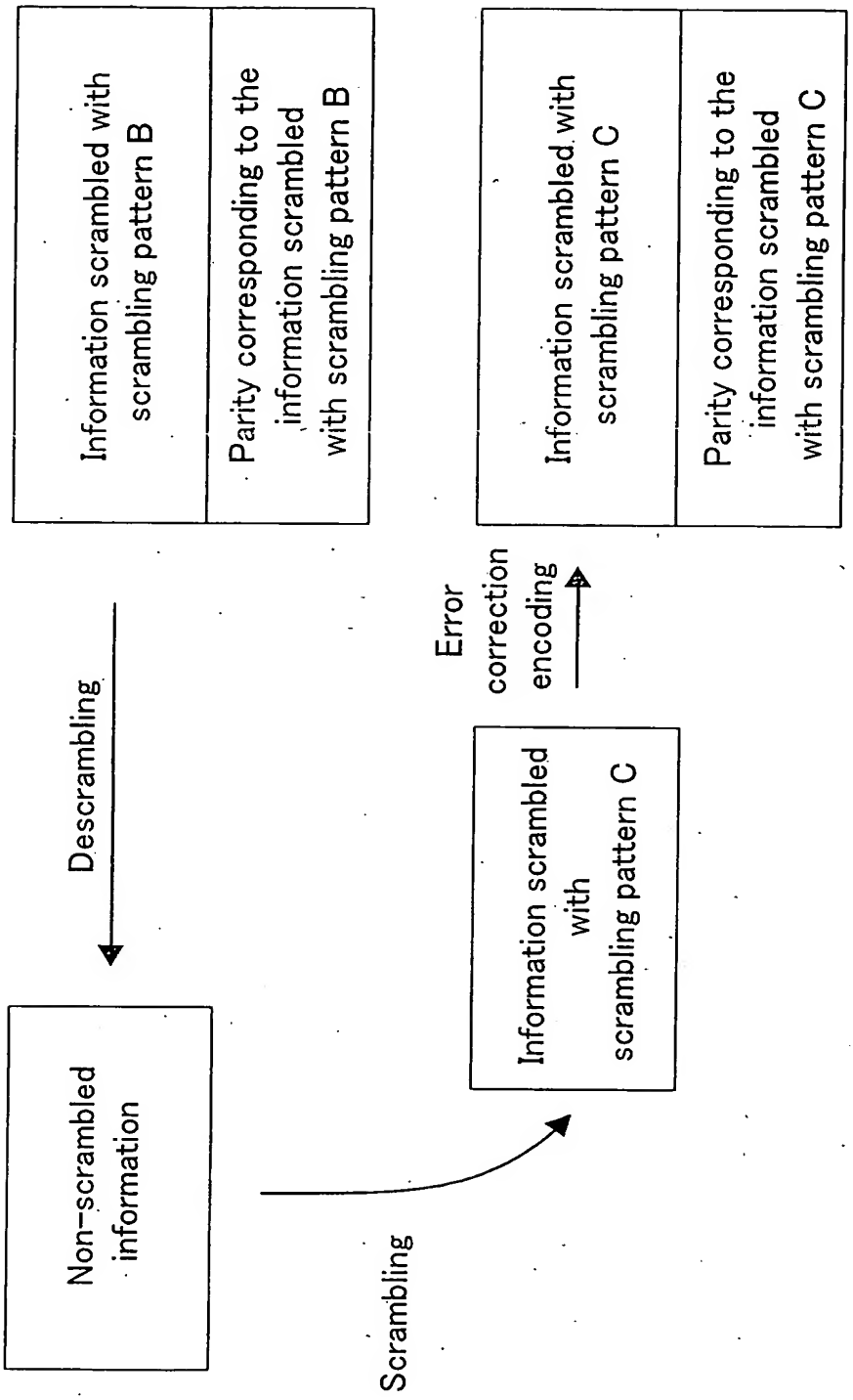

1501
Storage section
1502
Scrambling section
1503
Parity generation section
1500

FIG.18


Non-scrambled information
Descrambling
Information scrambled with scrambling pattern B
Parity corresponding to the information scrambled with scrambling pattern B
Scrambling
Information scrambled with scrambling pattern C
Error correction encoding
Information scrambled with scrambling pattern C
Parity corresponding to the information scrambled with scrambling pattern C

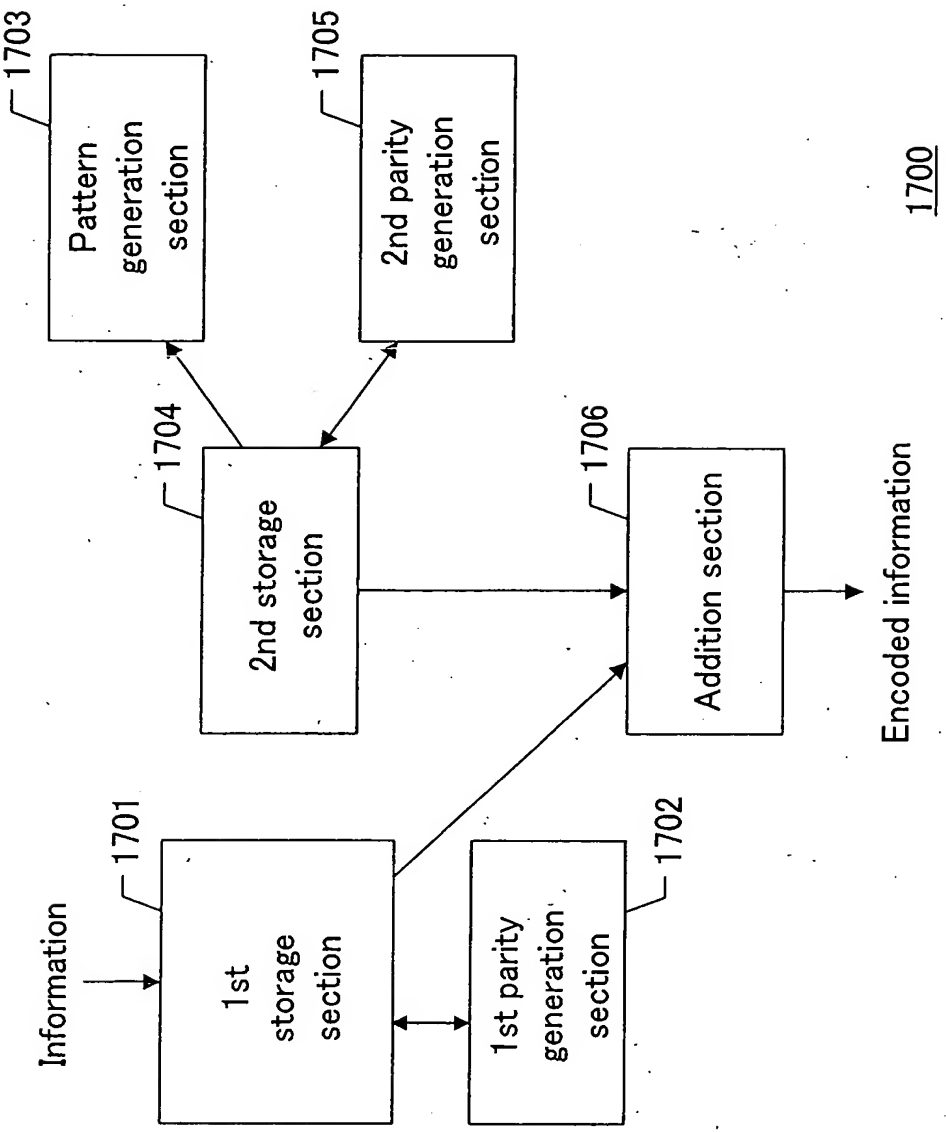

1703
Pattern generation section
1705
2nd parity generation section
1704
2nd storage section
1706
Addition section
Encoded information
1700
Information
1701
1st storage section
1st parity generation section
1702

FIG.19